

System, Computer Program and Method for Enabling Individual Client Users to Recruit, Connect to, and Manage a Remote Workforce Through a Shared Network

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Field of the Invention

This invention relates in general to methods and technologies that enable the management of a plurality of individuals to engage in structured service communications. More specifically, this invention relates to a system, computer program and method that enables individual Client Users to recruit, manage and pay their own remote agent workforce for the purpose of engaging in structured service communications.

15 Background of the Invention

Call centers have become widespread. Many businesses use individuals working in the context of a call center to handle telephone calls, emails, faxes or other communications that arise in the course of the operation of the business. The nature of these communications can vary greatly. They may involve customer orders, customer complaints, product returns, support of a product, and so on. All of these communications are referred to in this disclosure generally as "service communications".

25 These service communications are usually relatively structured. For example, many businesses want the individuals handling the service communications (usually referred to as "agents") to have specific background information on a product or service; to commence the service communication in a particular way; to conduct the service communication in accordance with a particular order; to respond to specific customer questions or concerns in a particular way, usually based on scripted responses; to follow a particular workflow, for example, regarding escalation of complaints to a service

manager; and so on. This is what is meant when the disclosure refers to the fact that the service communications are "structured".

5        There are a number of prior art technologies that enable the management of the engagement of agents in service communications in a call center context. A call center usually denotes a specific physical location in which a plurality of personnel are engaged in providing service communication services to one or more clients.

10        There are numerous advantages to utilizing "remote agents" for service communication purposes. "Remote agents" are not usually located in a call center facility and therefore provide the savings of the relatively significant overhead usually involved in providing call centers. "Remote agents" often work out of their homes and are not employees. This enables the provider of  
15        the service communications, i.e. the business providing access to a network of "remote agents" (usually referred to as the service provider in this disclosure) to provide work flexibility to "remote agents" in exchange for lower wages. This in turn enables the service provider to share the benefit of the lower wages with the clients, and also to improve the cost structure of the  
20        service provider. An added benefit of a network of "remote agents" is that the "remote agents" will not usually unionize.

      Prior art solutions exist for creating a network of remote agents, and enabling the management of remote agents via a central network for the  
25        effective provision of service communications to clients. For example, U.S. Patent 6,320,956, issued on November, 2001 to Cherry, generally describes method of automatic call distribution (ACD) service to one or more remotely located agents trained to service calls for a plurality of client call centers, comprising the steps of receiving a customer-initiated telephone call at a call  
30        center, routing the customer-initiated telephone call through a long distance carrier to a voice switch, the voice switch transmitting an array of caller information relating to the customer-initiated telephone call to a network

coordinator servicing a plurality of different call centers, the network coordinator identifying at least one remotely located agent trained and authorized to receive the customer-initiated telephone call for the call center, and the network coordinator routing the customer-initiated telephone call from the customer servicing central office to the designated remote agent.

It should be understood that in this disclosure "client" refers to the client who engages the service provider, and "customer" refers to the customers of the "client" with whom the remote agents engage in service communications.

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It should be understood that the method described in '956 patent provides means for extending the resources available to one or more call centers by providing access to a network through a network co-ordinator. There are a number of disadvantages to this prior art solution. The '956 patent contemplates a solution whereby a plurality of clients are given access to remote agents, where each remote agent is available to a number of different clients at any given time. No means is provided therefore for clients to dedicate to their own service communications to their own remote employees or specific remote agents connected to a network without the need for a "Network coordinator" as in the '956 patent. Another disadvantage of the solution described in the '956 patent is that it enables service communications only in the context of a call center. The remote agent network described in '956 does not permit non-call center staff (for example store personnel) to connect to the remote agent network to provide service communications. For example, the present invention allows personnel in geographically dispersed locations to send and receive voice and data communications on a unified network.

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What is needed therefore is a more flexible and comprehensive solution for enabling the recruitment and management of remote agents connected to a remote agent network by the employee or contract personnel. There is a need therefore for a remote agent solution that enables clients to

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recruit from a resource of potential remote agents one or more particular remote agents who meet the particular requirements of the client. There is a need for a system that is flexible in the sense that it also accommodates clients who want remote agents to be assigned on a random basis. There is a  
5 further need to provide a remote agent solution that enables clients to comprehensively control the remote agents connected to the network as though the remote agents were in fact the client's employees.

This is important to ensure quality and to update processes relevant to  
10 the service communications as efficiently as possible. This is important as with changes to the business of the client, changes to the service communication processes occur regularly. What is also needed is a system, computer program and method that enables remote agent management in a manner that simplifies transaction processing and human resource  
15 management operations in a solution that is less expensive and scaleable. What is also needed is a remote enabling network that enables clients to add a remote voice/data processing capability to their customer service operations without having to create their own remote network infrastructure.

## 20 Summary of the Invention

One aspect of the present invention is a remote agent network. The remote agent network enables Client Users to recruit, select, manage and pay a plurality of remote agents for the provision of service communication  
25 services to their customers.

The remote agent network consists of a central communication platform that includes a web server and telephony server. A network application is provided on the web server which provides one aspect of the  
30 program of the present invention. One or more Client Users are given access to an administration facility linked to the network application. The Client Users define their remote agent requirements using the administration facility. A

group of remote agents are linked to the remote agent network. One aspect of the remote agent network is a Client WAN that enables the recruitment, selection and management of a plurality of remote agents from the group of remote agents.

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Another aspect of the present invention is a computer program resident on the computer associated with the remote agents, which computer program consists of an operating platform. The operating platform includes a proprietary operating system for creating a channel to the Client User systems to obtain customer data and to a telephony server for linking with a Client User call queue.

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#### Brief Description of the Drawings

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A detailed description of the preferred embodiment(s) is (are) provided herein below by way of example only and with reference to the following drawings, in which:

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Figure 1 is a resource diagram illustrating the resources of the present invention, in a particular embodiment thereof.

Figure 2 is a system resource diagram illustrating the principal components of the system of the present invention.

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Figure 3 is a program resource diagram illustrating the principal resources of the computer program of the present invention.

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In the drawings, preferred embodiments of the invention are illustrated by way of example. It is to be expressly understood that the description and drawings are only for the purpose of illustration and as an aid to understanding, and are not intended as a definition of the limits of the invention.

### Detailed Description of the Preferred Embodiment

One aspect of the present invention consists of a method that enables  
5. a "Client User" (a user of the system of the present invention who is a client,  
as defined above) to configure on a remote agent network a plurality of  
human resource and technological parameters such that the Client User is  
enabled to recruit, manage and connect to a dedicated remote agent work  
force from any computer linked to the remote agent network.

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Another aspect of the present invention is the remote agent network **10**  
illustrated Fig. 1. The remote agent network **10** is best understood as a  
technology and communication platform that enables the interactions between  
Client Users **1** and Remote Agents particularized herein. The remote agent  
15 network **10** provides a series of tools that enable the Client Users to build and  
equip their remote agent workforce operations and then connect them into  
their daily stream of service transactions, and that enable the Remote Agents  
to conduct the service transactions defined by each Client User.

#### 20 **Client Users**

The Client User **1** is generally a client who has signed a service  
agreement with the operator of the remote agent network **10**. This agreement  
generally details the terms of access of the Client User **1** to the remote agent  
25 network **10** and covers billing issues, service levels, support and so on. One  
very particular aspect of the present invention is that Client Users **1**, in one  
implementation of the present invention, are billed on the basis of the amount  
of their live time utilization of the various resources of the remote agent  
network **10** by the Client User **1**, including their remote agent workforce (i.e.  
30 the remote agents that they have selected on the remote agent network **10**  
and conducted service transactions for the Client User **1**).

The remote agent network **10** is provided in a scaleable manner such that it can accommodate virtually any number of Client Users **1** and virtually any amount of service transaction volume that they generate. One of the main limitations of the use of the prior art solutions in operation is the intrusion of the Network coordinator in the independent usage of each Client User's human resources. This issue is resolved by giving direct control to each Client User in the various stages of their remote agent workforce deployment.

## **Specific Implementations of the Invention**

As illustrated in Fig. 1, the remote agent network **10** enables the Client User to use the remote agent network **10** to interact with service communication personnel who are not only located in different locations, but also may constitute a plurality of different groups, for example, service agents who are employees of the Client User, and others who may be hired on contract (referred to as "contract agents" in this disclosure). Contract agents enter into a licensing agreement with the operator of the remote agent network **10** regarding access and use of the network including associated technologies. The Contract Agents also generally enter into an agreement directly with Client Users.

"Remote agents" in this disclosure usually refers to service agents who are contract agents and are at a location remote from the Client User, e.g. they work out of their own homes. However, it should be understood that the remote agent network **10** of the present invention enables the service communication interactions, and the management thereof, with service agents who are in fact not contract agents. The word "remote agent" in fact incorporates also contract agents working from the remote agent network.

These different options defined by the human resource relationships that are supported by the remote agent network **10** are reflected in a series of

different configurations or process routes which are best understood by reference to Fig. 1. These configurations are managed by means of the client administration facility **12** shown in Fig. 2. As shown in Fig. 2, the remote agent network **10** is linked to a network application **11**. The network application **11** is best understood as a series of software and middleware utilities that enable the functioning of the aspects of the remote agent network **10** described herein, provided in a manner that is known.

One of the resources of the network application is a client administration facility **12**. The client administration facility **12** is best understood as a known utility that enables the various Client Users to select and dynamically alter the service parameters of the remote agent network **10** as it relates to the provisioning of the particular Client User. In one particular implementation thereof, the administration facility **12** is best understood as a utility that enables the management of a client Intranet **14** that is provided based on known technologies in a manner that is also known. Further details of the operation of the client administration facility **12** are provided below.

The configurations of the remote agent network **10** defined by the client administration facility **12** include the following:

1. A Client User who wishes to create their remote workforce exclusively from their own employees takes the process route illustrated in Fig. 1 as the Employee Agent Access Route **2**.
2. A Client User who wishes to create their remote workforce in some part with Contract Agents takes the process route illustrated in Fig. 1 as the Contract Agent Access Route **3**.

Not all businesses need to deploy a remote work force. Some companies may want to simply augment their present in-house voice/data system to a full "enterprise" system that accommodates all their locations.



Although this is a less complex configuration and is not the primary design of the remote agent network **10** of the present invention design, it is a practical outcome of the operation of the remote agent network **10**. Accordingly, the following third process route also exists:

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3. A Client User who wishes only to create their own "enterprise" voice/data switching system takes the Switch Access Route **4**.

### **The Real-Time Work Centers**

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The Real-Time Work Center (best illustrated in Fig. 3) is best understood as a utility of the network application **11** run on the web server **32** described herein. The Real-Time Work Center is a web-based system that provides a series of customizable work organization and communication tools for enabling Client Users and their remote agents to provide for the day-to-day functioning of the remote agent work force of the present invention.

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The Real-Time Work Center is provided by the network application **11** in two principal configurations: (1) a Client User Real-Time Work Center **5**, and (2) a Remote Agent Real-Time Work Center **15**. The interfaces and utilities linked with each principal configuration generally correspond, except the Client User Real-Time Work Center **5** enables the management of Remote Agents via the Remote Agent Real-Time Work Center **15**, and the Remote Agent Real-Time Work Center **15** is geared toward the remote agents provide service communications to particular Client Users.

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It should be understood that the network application **11** enables the operator of the remote agent network **10** to customize numerous aspects of the operation of the Real-Time Work Center to the particular needs of Client User, in a manner that is known.

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The administration facility **12** described below enables the Client Users to control the various functions of the Real-Time Work Center.

5 In one particular implementation of the present invention, each Client User receives their own custom corporate branded version **17** of the Real-Time Work Center. Remote Agents that contract with that Client User to perform services become "members" of the Clients Real-Time Work Center **15**.

10 The Real-Time Work Center **15** enables Client Users to control the remote agent work day directly without the need of a "Network Coordinator" as in the prior art solution.

#### **Client / Remote Agent Personal Management Tools**

15 One aspect of the Real-time Work Center **15** is a customized desktop **19** which is provided to Remote Agents. The customized desktop **19** provides access to the Remote Agents to a series of support and self-management tools. These tools are based on well-known utilities, modified to conform with  
20 the specifications described in this disclosure, in a manner that is well known to those skilled in the art.

#### *Collaboration Tools*

The present invention contemplates the customized desktop **19**  
25 providing access to a series of known collaboration utilities **21** that enable the Client Users (for example a manager) to collaborate with remote agents, and also for remote agents to collaborate with other remote agents in execution of tasks for their Client Users.

Another known utility that can be described as a "collaboration tool" is  
30 an online calendar **23**. The online calendar **23** is a standard calendar

interface that is linked to the functions of the online scheduling utility **18** described below. Accordingly, the online calendar **23** enables remote agents to schedule their shifts for particular Client Users, and Client Users to control their remote agent requirements, but also enables Client User personnel and  
5 remote agents to collaborate in their scheduling activities.

A still other known utility that can be described as a "collaboration tool" in the context of the present invention is a contacts directory **25** which provides hierarchical access to contact information for specific "members"  
10 (whether Client User managers, network administrator personnel, or remote agents). This contacts directory **25** enables easy communication between members over the remote agent network **10**. The contacts directory **25** and access thereto is administered by operation of the administration facility **12**. The contacts directory **25** is linked to the web mail utility **47** and fax utility **49**  
15 described below.

The present invention also contemplates the integration of well-known polling applications and wireless device synchronization utilities (not shown) to better enable collaboration between members. These utilities are provided  
20 and integrated into the disclosed invention in a manner that is known.

#### *Communications Tools*

Chat workrooms automatically launch after login to provide an "always  
25 open" door for easy collaboration between Client User managers and their remote agents. Web mail is provided by operation of the web mail utility **47** described below. Other features include : Group Announcements, Online Discussions, MailBox, Wireless Access, and other similar utilities.

#### 30 *Productivity Tools*

The present invention also contemplates the incorporation into the network application **11** of various productivity tools for deployment by operation of the Real-Time Work Centers, including Task Managers, Group Links, and Extranet Options.

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#### *Admin & Security Tools*

The present invention also provides for various means for ensuring the security of Client User data including Secure Member Access, Permissions  
10 System, Member Groups, Secure Hosting, and SSL Encryption. In addition, in a particular embodiment of the present invention, an authentication utility **48** is described below to ensure that only authorized remote agents can connect to the remote agent network **10** and thereby gain access to client user data.

#### 15 *Database Creator & Manager*

The Database Creator & Manager allows Clients and remote agents to organize, store and share important business information with ease. For example, the present invention contemplates inclusion of a known database  
20 management utility **29** which enables the management of the document storage system **28**. The database management utility **29** enables databases and documents to be created and posted to the various remote agents. These documents include, for example, scripts for asking questions from, or responding to questions of, customers of Client Users; manuals for providing  
25 customer service on particular products or services of Client Users.

The database management utility **29** allows Client Users to quickly and easily:

- Create customized databases;
- 30 ○ Create databases from a plurality of Database Solution Templates stored to the document storage system **28**;

- Sort, group and filter data for multiple views;
- Format database reports for printing;
- Import and export data to save time and increase accuracy;  
and
- 5       ○ Access data instantly, 24 hours a day, 365 days a year.

Every Client Real-Time Work Center is equipped with a standard set of self-customizable databases templates to begin.

In a particular implementation of the present invention, the Client User Real-Time Work Center enables the Client Users and remote agents to  
10   access a number of functions that are best understood as customizable routine templates run on the Real-Time Work Center. These routine templates enable management of service communications by the Client Users. For example:

- *Agent Observe*  
15       Agent Observe gives Client Users a template to request the random recording of remote agents on calls from the telephony server **46** (described below) for training and quality assurance purposes. In a particular implementation of this feature, Client Users are enabled to score the call and send a direct link to the data record via email.  
20       Remote Agents are enabled to review their voice recordings, scores and coaching points. Client Users are enabled to customize the score sheet questions, point values, action lists and coaching points.
- *Asset Manager*  
25       The Asset Manager template enables Clients and remote agents to maintain a detailed inventory of anything - from computer hardware and merchandise. A field is provided to upload a picture of each item in the Asset Manager. Client Users are enabled to customize the fields and views based on the items that they desire to catalog.

- *Customer Relationship Manager (CRM)*

The Customer Relationship Manager (CRM) template allows Client Users and remote agents to store and retrieve information about people. It can be used as a customer contact list in which to keep track of interaction with Client Users' clients, a donor list for Client Users' non-profit organization or event, or a class roster. By simply changing field names, or adding, deleting, or rearranging fields, Client Users can create a custom contact list to suit specific needs. Client Users are enabled to use the Activity Log to track communications with contacts.

- *Event Registration*

Client Users are enabled to use the Event Registration template to track registration information for meetings, seminars, conferences, trade shows, classes, sporting events, club functions, or corporate event. This template includes two, related databases: one for keeping track of event details such as time, location, and description, and one for tracking the attendees of each event. Client Users are enabled to monitor event capacity and registration fees for attendees.

- *In/Out Board*

The In/Out Board helps keep track of members' whereabouts, improving office / remote productivity and efficiency. Instantly view co-workers'/members status to see if they are in or out, at lunch, in a meeting, on vacation, or out sick. Click on a member name to look up contact information for that person.

- *Issue Tracker*

The Issue Tracker template provides a ready-made database where Client Users/remote agents can log problems and inquiries, and assign trouble tickets for Client Users/members to track. Client Users can

customize this template as a starting point based on the practices their company uses to prioritize and follow up on inquiries.

5       ○ *Knowledge Base*

The Knowledge Base template allows Client Users to easily create, maintain, and share company knowledge, either internally or externally. Some popular applications for this database include an IT Help Desk, a Client Customer FAQ List, a Self-Service Training Center, and a 24x7  
10       online Technical Support line. Search the knowledge base to get immediate answers to all product or support questions.

○ *Sales Forecasting*

Client Users may use the Sales Forecasting template to get instant  
15       snapshots of sales pipeline, empowering Client Users and sales teams to stay ahead of rapidly changing situations. With a Sales Forecasting database Client Users can review the status of each sales opportunity, keep historical data of sales activity in the Activity Log, print forecast information, or export sales data to a spreadsheet for additional  
20       analysis. It is a great tool for managing your prospect activity. Since all the fields and views are customizable, Client Users can easily tailor the database to match their company's unique forecasting process.

25       ○ *Time Sheet*

Client Users may customize the Time Sheet template to create a custom database where Client Users / remote agent members can track billable and non-billable time spent on, projects, and activities.

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In an example that illustrates the operation of the present invention, Client Users begin the enabling process by entering a client username and

password assigned by the operator of the remote agent network **10** via a standard log-in interface provided by the client administration facility **12** in a manner that is known. By providing the username and password, authorized personnel of the Client Users can gain access to the client Intranet **14**.

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As shown in Fig. 2, the remote agent network **10** includes a communication infrastructure or communication utility **16**. The constituent elements of the communication utility **16** in a representative implementation thereof are detailed below.

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Also as shown in Fig. 2, one aspect of the communication infrastructure of the present invention is that the client Intranet **14** provides to the Client User a private communication channel using live Chat, video, person to person and group conferencing that connects the Client User with their remote agents. The client Intranet **14** is best understood as a communication hub that permits remote agents and the various Client Users to interact. It also links the client's remote agents (and all remote agents) together in an interactive, online community.

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One aspect of the network application **11** is a customizable interface that enables the Client Users to manage their utilization of the resources of the remote agent network **10**. This customizable interface is shown in Fig. 1 as the "Real-time Work Center" **5**.

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One of the features of the Real-Time Work Center **15** in its Client User iteration is a customizable interface provided to Client Users that enables management of the aspects of the client Intranet **14** pertinent to the particular Client User.

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The Real-Time Work Center **15** in its Client User iteration organizes access to a comprehensive set of management tools necessary for the real-time care and control of a remote agent work force. These tools are

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particularized below. In one representative embodiment of the Real-Time Work Center **15**, it is provided in a known WINDOWS™ interface with a series of drop down menus provided in a manner that is known.

5           Client Users choose their own configuration of the Real-Time Work Center **5** from a menu of available management tools. These tools are illustrated in Fig. 3. The tool menu includes (in this representative embodiment) means for accessing the following utilities: an on-line scheduling utility **18**, remote monitoring utility **20**, chat/video management utility **22**, work  
10 organization utility **24**, agent search utility **26**. The Real-Time Work Center **5** also provides an interface to the document storage system **28** and the Real-Time Exchange **6**.

          The on-line scheduling utility **18** enables the remote agents to provide  
15 the times when they are available for handling calls; and enables Client Users and managers of the remote agent network **10** to book remote agents for particular time slots. In a particular preferred embodiment, first the remote agent builds their weekly / bi-weekly profile of work availability in ½ hour intervals and posts it to the on-line scheduling utility **18**. Second the Client  
20 User enters anticipated transaction volumes to be processed in ½ hour intervals. The on-line scheduling **18** utility calculates how many remote agents will be required to process the anticipated transactions. The Client User reviews and adjusts the recommended head count if required. The Client User submits the final headcount to the on-line scheduling utility **18**. The on-line  
25 scheduling utility **18** builds individual schedules from the remote agents' availability profiles in ½ hour intervals in a manner that is known by means of a matching routine of Client User requirements to availability of particular remote agents. The on-line scheduling utility **18** then returns the confirmed final work schedule to the individual remote agents and a final confirmation  
30 headcount fulfillment to the Client User.

The on-line scheduling utility **18** thereby enable schedules to be created for remote agents. The on-line scheduling utility **18** also enables remote agents to check their schedule, place scheduled shifts that a remote agent can no longer keep on a live swap board, in a manner that is known,  
5 create alarms and reminders and so on. For this purpose, the on-line scheduling utility **18** is accessible through the operating platform described below, or via a browser loaded to the remote agents' computers.

### **The Real-Time Exchange**

10 Client Users choosing to use Contract Agents are able to recruit their workforce through the resources of the Real Time Exchange **6**. The Real Time Exchange is a web site **31** that, in a representative embodiment of the present invention the web site **31** is hosted on the web server **32**. The Real  
15 Time Exchange **6** is best understood as a web enabled electronic labor exchange, provided in a manner that is known. By operation of the administration facility **12**, the Real Time Exchange **6** provides a labor exchange for Client Users to search and locate Remote Agents linked to the remote agent network **10** that meet the particular requirements of the Client  
20 User.

The web site **31** includes an agent area **33**. The agent area **33** is accessible to all prospective Contract Agents recognized by the operator of the remote agent network **10**. The site provides an on-line template for a  
25 multi-media e-resume (photo, text, sound) that every prospective Contract Agent is required to complete in order to participate in the electronic labor exchange process. Completed e-resumes are stored on the database **34** linked to the web server **32**.

30 The web site **31** also includes a Client User Area **35** which enables Client Users to perform searches of current "member" Contract Agent databases or to post their requirements to prospective Contract Agents by

means of an electronic bulletin board **37** that is provided in a manner that is known. Specifically, in one particular implementation of the present invention, the Client Users provide their eligibility requirements in a form provided by the web site **31**. The network application **11** automatically publishes the  
5 requirements to the web site **31** in a manner that is known.

In one particular aspect of the present invention, the network application **11** prescreens the Contract Agents by analyzing the eligibility requirements of Client Users and comparing these requirements to the  
10 qualifications of Contract Agents or prospective Contract Agents linked to the remote agent network **10**. The Agent Area of the web site **33** thereafter only shows eligibility requirements of Client Users whose eligibility requirements are met by the particular Contract Agent. Example of eligibility requirements includes knowledge of a particular language, or years of experience as a  
15 Contract Agent.

Once a Contract Agent eligible to fill out a particular Qualification e-form fills out a particular Qualification e-form, the e-form is passed on by the network application **11** directly to the Client User. This is an important aspect  
20 of the present invention that enables the Client User to control their contract agent workforce by directing their recruitment. Client Users can arrange for telephone or in person interview as they may require.

In one particular implementation of the present invention, once a Client  
25 User has determined that one or more Contract Agents have met their requirements, the Contract Agents are invited to join a Client User training course. The training course is usually designed jointly by the Client User and the operator of the remote agent network **10**. Training consists of a combination of on-line learning and in class time. The execution of training is  
30 generally provided by the Network operator or the Client User, or both jointly, depending on the specific requirements of the Client User.

The Client User Area **35** of the web site **31** provides a link to the functions of the agent search utility **26**. The agent search utility **26** enables the Client User to search for submitted e-resumes.

5           The Real Time Exchange **6** enables the Client Users to simply and quickly build their own remote Contract Agent workforce without the expense of recruitment and without the restriction of geographical limits.

### **Agent Access Operating Platform**

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For a remote agent workforce to effectively process voice/data transactions for Client Users, a secure, seamless and uniform communication and operating platform is desirable that links the remote agents the contact center operations of the Client User, and specifically the Client User's voice  
15 and data work stream.

In accordance with one particular aspect of the present invention, a common proprietary operating platform **36** is provided to each Contract Agent. The operating platform **36** is also an aspect of the computer program of the  
20 present invention. The operating platform **36** is loaded on each computer that is connected to the remote agent network **10**. In particular, the operating platform **36** is loaded on the computer or computers used by the Remote Agents.

25           In one particular embodiment of the present invention, the operating platform **36** includes a proprietary operating system **40** and an agent application **42**. The operating system **40** is a LINUX™ based operating system provided in a manner that is known.

30           The operating platform **36** resides on the boot disc of the computer. In a particular implementation, the operating platform **36** is stored to a compact disk or some other computer readable medium. When the disk boots up, the

operating platform **36** loads into the RAM and not the hard drive of the computer. During the install, a secure partition is built between the operating platform **36** software running from the RAM on the computer and the computer's hard drive. This isolates the resident installed PC's hard drive and  
5 operating system from access thereby securing Client User data accessed by the Contract Agents via the link with the remote agent network **10**.

With the operating system **40** in full control the computer, it is converted by the operating system **40** into a VPN secure, remote workstation  
10 with IP packet control of the Remote Agents' state on the carrier switch **50**, in this particular implementation a P.S.T.N. Class 5 Carrier Switch.

The agent application **42** includes a series of communication utilities and interfaces **43** necessary to connect to the remote agent network **10** as  
15 described herein, and also to connect to the client application **39**. The agent application **42** also includes the telephony application **45** described below, which enables the Contract Agents to handle telephone calls for Client Users. The agent application **42** also includes a known web mail utility **47** for  
accessing emails sent to Client Users, and responding to same where this is  
20 required by the particular Client User. The agent application **42** also includes a fax utility **49**. The agent application **42** still further includes an agent application interface **44** that enables the Remote Agents to control the functions of the client application **38** from the Remote Agent's computer. These functions include for example accessing certain call templates,  
25 documents for responding to customer queries, and so on.

The Client User generally uses a client application **38** associated with a client server **39** for their call center functions. The client application **38** may include, for example, call center software. One aspect of the present  
30 invention is that the operating platform **38** is adapted to connect the computer of the Remote Agent to the client server **39** and thereby the client application **38** as particularized herein. Specifically, the operating platform **36** connects

to the remote agent network **10** of the present invention and then the remote agent network **10** provides a secure connection to the client server **39**.

Provided that the client application **38** is web enabled, the Remote Agents can interface with the client application **38** directly. Alternatively, a web emulator  
5 **49** is used to create a web-enabled version of the client application **38** in a manner that is known to those skilled in the art.

It should be noted that by interaction of the Remote Agents with the client application **38**, the Remote Agents could store data to a client database  
10 (not shown) of the particular Client User.

On start-up, the agent application interface **44** fills the PC screen and displays the customized desktop **19** described above. The customized desktop **19** provides access to the tools and applications required for the  
15 remote agents to connect into the Client User's voice/data system. Specifically, the operating system **40** loads the telephony application **45** which is a softphone application that is part of the agent application **42**. The softphone application is a known software utility that enables the remote agent to control its state, i.e. whether s/he is logged in, available to take a call,  
20 unavailable, hold, transfer connect, conference, hang-up, and automatic speed dial lists, etc in the Client User queues on the carrier switch **50** which in one particular implementation is a class 5 carrier switch, provided in a manner that is known. A live video link circuit is also launched, this provides visual authentication of remote agents and also provides an audiovisual  
25 communication and monitoring tool between remote agents to remote agents and remote agents to their Client managers.

The operating platform **36** connects the remote agent into the telephony server **46** that is connected to the remote agent network **10**. The  
30 operating platform **36** also connects the remote agent via a CTI (Computer Telephony Integration) data link into the Client User's customer database record information that is linked to the client server **39**. This allows the

customer records to be routed with the individual calls and displayed in the agent application interface **44** of the answering remote agent at the same time as the call arrives.

5           Calls are routed to the telephony server **39** in a manner that is known to establish a call queue. Upon login, the remote agent is automatically put in the correct client queue, with the customer data and softphone control application open, ready to process calls, email, webchat, faxes & transactions. In this manner, the present invention enables surplus calls from a Client User  
10 call center to be routed to remote agents connected to the remote agent network **10**.

### **Security Utility**

15           A known security utility **48** is used to ensure that only authorized remote agents can access the remote agent network **10** and thereby data belonging to the Client Users. One particular implementation of the present invention includes an authentication utility or security utility **48** that is a biometric identification facility. For example, remote agents can be provided  
20 with a fingerprint scanner device which is connected to their computer. The authentication utility **48** compares a fingerprint scan obtained from the remote agent with an encrypted and secure file containing fingerprint data for the remote agent. In one particular implementation of the present invention, the fingerprint scan data is stored to the compact disc provided to the remote  
25 agents, i.e. each agent is provided a personalized compact disc.

          On each disc boot-up, before a remote agent can login he/she must go through a fingerprint login scan by operation of the security utility **48**. Only if the fingerprint scan matches the one embedded on the disc can the agent  
30 gain entry.

By this process Client Users are assured that only their remote agents have access to their transaction stream.

### **The Voice/Data Center**

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The transaction flow generated by the customers of Client Users and processed by the Client Users remote agents is controlled and physically connected through the remote agent network's **10** Central Voice/Data Center **9**. The Central Voice/Data Center **9** is best understood as a central resource management utility for managing the allocation of resources available on the remote agent network **10**. The Central Voice/Data Center **9** is the junction where the transaction demand side (the customer calls) is dynamically matched with the supply of human resources (the remote agents) waiting to process the transactions, i.e. the service communication requirements. The typical event for an inbound customer call involves the following sequence:

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1. The customer call is switched (or diverted) from the Client User's contact center to designated ports on the Class 5 voice switch **50** (shown in Fig. 1) in the CallCast voice/data environment. The designation of the port identifies the remote agent's current status of availability generally to a 1-second refresh rate.
2. The voice switch **50** then identifies the next waiting remote agent from the queue of agents logged-in for calls from that port and gives him/her access to the call.
3. Simultaneously, the switch gathers the customer's service information from the client server **39** and directs it to the designated remote agent so he/she is equipped with the specific customer data information which is automatically popped up on their work screen ready for call processing.



4. The remote agent processed transaction is then switched back to the client server **39** or corporate facility for fulfillment.

All this is executed within the Central Voice/Data Center **9** configuration of voice/data switching, routing and database components specifically designed for the purpose. The following describes these components and the contribution each makes to the event sequence.

1. The Class 5 Voice Switch

The voice switching in the present invention is handled by a Class 5 central office voice switch **50** that serves the local public switching network as an end office. The voice switch **50** is connected to the live database of the Intelligent Transaction Router **52** and the Telephony Server **46**.

2. Telephony Server

The telephony server **46** allows a remote agent to log into a port on the telephony server **46** using IP signaling from the graphic user interface of the remote agent's softphone application that is part of the agent application **42**. The Telephone Server **46** dials a connection to that agent using public telephone lines. The Telephony Server **46** is hard wired to the Class 5 Carrier switch using dedicated T1 connections. This allows the Class 5 Switch **9a** (as illustrated in Fig. 1) to associate a dynamic or dedicated port within an ACD (automatic call distributor) queue configured on the Class 5 Carrier Switch **9a** to the remote agent port on the Telephony Server **46**.

Once this login is complete, the remote agent (using the softphone graphic user interface) has the ability (via IP signaling to the Telephony Server **46**) to control their state within an ACD queue on the Class 5 Carrier Switch using a public telephone line connection. Typical remote-controlled functions include: (i) "LOGGED IN"; (ii) "AVAILABLE TO TAKE A CALL"; (iii)

"LOGGED IN"; (iv) "AVAILABLE TO TAKE A CALL"; (v) "UNAVAILABLE", (vi) "HOLD", (vii) "TRANSFER CONNECT"; (viii) "CONFERENCE"; (ix) "CONFERENCE" (x) "HANG-UP"; (xi) "SPEED DIAL LIST".

5           The Telephony Server **46** is also able to identify the remote agent on the Class 5 Carrier Switch **50** allowing CTI (Computer Telephony Integration) functions to take place. CTI is the ability of the Intelligent Transaction Router **52** to retrieve customer data records from the Client User's client server **39** and the corporate data server (or equivalent) linked thereto.

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          The Telephony Server **39** identifies which ACD port the remote agent is logged into and which IP data connection is required for customer information transfer between the Intelligent Transaction Router **52** and the remote agent. This capability enables the calling customer's data records to arrive on the  
15 remote agent's computer at the same time the call is presented to the remote agent.

          One of the advantages of the present invention is that its particular configuration of the telephone server **46** makes a high performance voice and  
20 data connection path available to remote agents located anywhere in the world using a simple Internet and public telephone line connection.

### 3. Intelligent Transaction Router

25           The Intelligent Transaction Router **52** is best understood as a utility that includes a plurality of routines that enables the dynamic selection of which remote agent actually receives which call and/ or transaction type. The selection is determined by matching the qualification profiles (skills, training, priority etc. as established by the Client User) of their queued remote agents  
30 with the Client users call types or transaction types to be processed. The call or transaction types being established by rules set by the Client user in the

ITR. The Client Users store the qualification profiles of their remote agents on the ITR database.

#### 4. Client User's Corporate Data Site

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As stated earlier, in one of the aspects of the remote agent network **10**, the remote agents are given access to the client server **39**, including the Client User's data center or corporate data site. The corporate data site may be located anywhere. It generally includes information that can assist the  
10 processing of a transaction – customer buying history, shipping address and credit card information etc. When a customer is identified (using rules set by Client users on the Intelligent Transaction Router **52**) the specific customer data file is retrieved from the database and sent to the assigned remote agent by application of the remote agent identifying technology and rules resident in  
15 the Telephony Server **46** and the Intelligent Transaction Router **52**. The data path between the Corporate Data Site and Central Voice/Data Center **9** is by data frame relay or managed circuit.

#### 5. Customer Transaction Flow

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The customers **12** of Client Users either initiate in-coming transactions (calls/e-mails/chats/faxes) or are recipients of the Client Users outbound transactions. Transactions may come direct into the Central Voice/Data Center **9** via the public service telephone network (PSTN), or by T1, 800 voice  
25 routing, internet, frame, or managed circuits **11a**.

For maximum flexibility Client Users have the ability to choose multiple voice and data transmission methods.

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Transactions may first go to the Client User's contact center where they are switched through by managed T1/ frame connections **11b** to the CallCast Voice/Data Center **9**. Or calls may be percentage allocated by 800

routing 11 before reaching the Client Users ACD and directed through a common carrier to the Central Voice/Data Center.

Alternatively the Client user may choose to directly point transactions  
5 to the Central Voice/Data Center 9 using Internet and PSTN 11c connections.

### **The Remote Agent Invoice And Collection Method**

In order to keep administration costs low for Clients Users, and to  
10 ensure the timely payment of remote agents, another aspect of the present invention is a remote agent invoice and collection method. In accordance with this method, remote agents contract and pay a billing third party to prepare billing invoices and collect monies for work performed based on their work contracts with their Client Users.

15 Remote agents authorize this billing third party to access their work data records in the Central Voice/Data Center 9 which prepares records of the work performed by the remote agent for their Client User.

20 An invoice is automatically generated for each remote agent on the 1<sup>st</sup> and 16<sup>th</sup> of each month. Remote agents sharing the same Client User are grouped together by remote agent line item creating a master invoice for each Client User. The billing third party emails the master invoice to each Client User. The Client User reviews the master invoice by comparing it to each  
25 remote agent's work records in the Central Voice/Data Center 9. Client Users use electronic payment or check to transfer payment for the remote agents' master invoice to the billing third party within the predetermined payment period, for example 10 business days. Overnight, the billing third party transfers payment for each remote agent's invoice directly into their  
30 designated bank accounts using direct electronic transfer.

These functions are provided by a remote agent billing application 54 provided in a manner that is known.

### Advantages

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One of the aspects of the present invention is that any computer with access to a telephone line and preferably a high-speed internet connection is eligible for instant conversion to a remote enterprise voice and data workstation. Client Users and remote agent workers are able to enter and  
10 carry on a highly productive day-to-day work relationship without ever meeting each other directly. The present invention provides flexibility to Client Users in enabling the quick expansion or contraction of service communication resources. The present invention allows the Client Users to deploy quality services to customers with minimum investment.

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Other variations and modifications of the invention are possible. All such modifications or variations are believed to be within the sphere and scope of the invention as defined by the claims appended hereto.